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ABSTRACT

Drawing on information and references in the ERIC system, this literature review describes research related to a child's developmental placement. The issues examined include school entrance age; predictive validity, reliability, and features of Gesell School Readiness Assessment; retention; and the effectiveness of developmental placement. A summation of the research for each issue is provided, as well as annotated references for the research described. (HOD)

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Collected Research References

Dr. Gail Bjorklund

Research related to developmental placement issues has continued to grow. The following research reviews highlight information which is most frequently requested for program justification and implementation.

For additional information and references using the following descriptions for ERIC or Current Index to Journals in Education may be helpful:

School Readiness
School Entrance Age
Screening
Kindergarten
Retention
Gesell

School Entrance Age

Research comparing children who entered school at a younger age (i.e. fall and/or summer birthdays) with those who were older has revealed the following according to Uphoff and Gilmore (1985):

1. The chronologically older children in a grade tend to receive many more above-average grades from teachers than do younger children in that grade.
2. Older children also are much more likely to score in the above-average range on standardized achievement tests.
3. The younger children in a grade are far more likely to have failed at least one grade than are older children.
4. The younger children in a grade are far more likely to have been referred by teachers for learning disabilities testing and subsequently have been diagnosed as being learning disabled than are older students in a grade.
5. The academic problems of younger children who were developmentally unready at school entrance often last throughout their school careers and sometimes even into adulthood.

Most research seems to support that a chronological age of five years by September 1 for kindergarten can help prevent some of the above problems. However, decisions need to be made individually, since developmental readiness for school does not always correlate with chronological age.

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Baer, C. J. "The school progress and adjustment of underage and overage students." Journal of Educational Psychology, 1958, vol. 49, no. 1, p. 17 - 19.

Older children received higher marks, scored higher on achievement tests, were retained less frequently and were rated higher on positive personality traits.

Bigelow, E. B. "School progress of under age children." The Elementary School Journal, September, 1934, vol. 35, p. 186-192.

Early work finding lower achievement scores and marks among younger children.

Dietz, C. and Wilson, B. "Beginning school age and academic achievement." Psychology in the Schools, January, 1985, vol. 22, p. 93 - 94.

Comparison of three age groups on achievement test scores in kindergarten, second and fourth grade found no significant differences. Age cutoff was September 1.

DiPasquale, G. W., Moule, A. D., and Flewelling, R. W. "The birthdate effect." Journal of Learning Disabilities, 1980, no. 5, p. 234 - 238.

Found high rates of remedial referrals among younger children.

Gredler, G. R. "A look at some important factors in assessing readiness for school." Journal of Learning Disabilities, 1978, vol. 2, no. 5, p. 25 - 31.

_____. "The birthdate effect: fact or artifact?" Journal of Learning Disabilities, 1980, vol. 13, no. 5, p. 9 - 12.

Gredler's research casts doubt on concept of readiness and retention since birthdate effect was not present in later grades. Suggests individualizing curriculum.

Halliwell, J. W. "Reviewing the reviews on entrance age and school success." Journal of Educational Research, 1966, vol. 59, no. 9, p. 395 - 401.

Studied early entrants; shows other approaches more successful.

Hedges, W. D. "At what age should children enter first grade?" March, 1978, ED 152406.

Inadequacy of chronological age as prediction of success, need for individual decisions based on screening.

Johnston, A. M. "School entrance age." Childhood Education, March, 1964, vol. 40, no. 7, p. 384 - 387.

Found reading success highest among oldest regardless of ability; boys at all age levels reported as experiencing more emotional adjustment than girls.

King, I. B. "Effect of age of entrance into grade 1 upon school achievement in elementary school." Elementary School Journal, February, 1955, p. 331 - 336.

Younger children were less able to adjust to restrictions and tensions of school; also had lower grades.

Langer, P., Kalk, S. M., and Sears, D. T. "Age of admission and trends in achievement: a comparison of blacks and caucasians." American Educational Research Journal, 1984, vol. 21, p. 61 - 78.

Achievement data for Caucasians showed higher achievement for oldest at age 9 but decreased at age 13 and disappeared by age 17. For Blacks differences did not disappear until age 17. Reason for decrease found to be high retention of younger children.

Uphoff, J. K. and Gilmore, J. "Pupil age at school entrance." Educational Leadership, Summer, 1985.

Review of recent research in schools. Lists suggested actions to prevent "too much, too soon."

Predictive Validity, Reliability and Features of Gesell Assessments

Gesell School Readiness Assessments, in which a child's responses are compared to norms for various "developmental ages", are more like qualitative evaluations than numerically scored tests. While this makes some forms of psychometric analysis less appropriate, many studies are available which examine such statistical as changes in norms over time, reliability and validity.

Historical comparison of Gesell infant developmental scales is reported in the most recent edition of Developmental Diagnosis (1980), over 1000 children representing a cross-section of socio-economic levels were examined. During the thirty-odd years that had elapsed between the publication of the original scales and these more recent ones developmental trends had not altered. The maturational rate among infants and young children has accelerated only slightly as reflected in a 5% acceleration of fine motor behaviors, a 10% acceleration in adaptive behaviors, a 12% acceleration in language behavior, a 16% acceleration in personal-social behavior and a 17% acceleration in gross motor behavior.

This pattern of similarity continues among older children. Norms reported in 1940 on the behavior tests for children 18 months through 6 years were re-examined in The Child from One to Six. The sample of 320 girls and 320 boys represented, in the proportion in which they appear for US census figures, all occupational categories. In 55% of the measures scored behavior occurred at exactly the same time. In 20 of the remaining 23 instances children in the 1970's were approximately six months ahead of earlier subjects. Thus, while children today are in certain respects slightly ahead developmentally, the similarities outway the differences.

Psychometric analysis of the Gesell School Readiness Assessment has been reported in Child Development by Kaufman (1974). Inter-rater reliability correlations of .87 were found. Factor analysis of 11 Gesell sub-tests confirmed the assessments' measure of one basic construct - behavioral maturity. Subsequent rotations produced two additional but less important factors underlying the nature of the Gesell tasks: abstract intelligence and experience.

The validity of the School Readiness Assessments has been reported by Drs. Ames and Ilg in a 1964 issue of Perceptual and Motor Skills. A correlation of .74 was found between readiness predictions for 52 entering kindergarten children and their 6th grade school performance. More recent study of the predictive validity of the School Readiness Screening Assessment (Wood, 1984) demonstrated that developmental age scores were significant predictors of school success or failure. Using a "critical age" cut-off of 55.6 months as of October 1st, predictions were successful 78.6% of the time. With a critical age cut off of 57.6 months by October 1st the accuracy was 77.4%.

Ames, L. B., Gillespie, C., Haines, J. and Ilg, F. The Child From One to Six. New York: Harper and Row, 1979.

Most current update of norms on tests among 640 children 2 1/2 to 6 years of age, across controlled sample of SES/occupational levels

Ames, L. B. and Ilg, F. "Gesell behavior tests as predictive of later grade placement." Perceptional and Motor Skills, 1964, vol. 19, p. 719 - 722.

Tests the hypothesis that behavioral age is more effective criterion for determining optimal school entrance time than chronological age or intelligence quotient. 52 children were evaluated at the time of kindergarten entrance on four measures. Predictions were then compared to sixth grade level of school performance. Correlation between readiness tests results and sixth grade performance was .74 as compared to .56 between I.Q. and sixth grade.

Gesell, A., et.al.. The First Five Years of Life. New York:

Harper and Row, 1940.

Describes the original battery of behavior tests and norms established by examination of children in the 1930's.

Heimgartner, N.L. "Developmental age as a predictor of reading success." Greeley, CO: The Laboratory School, University of Northern Colorado, Chapter IV Research Study No. 2, Fall 1970.
The purpose of this study is to determine which sections or sub-tests would be the best predictors of reading success.

When developmental age is known, prediction for reading success is .8382; when not known prediction is .5145. Copy Forms and Incomplete Man together give best prediction of developmental age. (Note: cubes were not included in the design.)

Kaufman, A. S. "Piaget and Gesell: A psychometric analysis of tests built from their tasks." Child Development, November, 1971, vol. 42, no. 5, p. 1341 - 1360.

Factor analysis supports the concept for the Gesell Assessments of one overall score - notably developmental or behavioral maturity. Inter-rater reliability of developmental age scores as .87 on 40 subject records.

Knobloch, H., Stevens, F. and Malone, A. Manual of Development Diagnosis. New York: Harper & Row, 1980.

Information on the administration and interpretation of Revised Gesell and Amatruda Developmental and Neurological Examination. Present manual is outcome of examination of over 1000 infants/children from 4 weeks to 36 months. Shifts from original samples in prior revisions over intervening 30-some years are slight: 5% acceleration in fine motor in some of older ages to 16-17% in personal-social and gross motor behaviors. No behavioral differences were identified on the basis of SES. Trends in development remained the same.

Ilg, F. Scoring Notes. New Haven, CT: Gesell Institute 1965 (1985 is latest revision.)

Provides detailed administration and interpretation information for Gesell School Readiness Screening and School Readiness (full battery) Assessments. Available only to Gesell Institute workshop participants.

Ilg, F., Ames, L.B., Haines, J., and Gillespie, C. School Readiness. New York: Harper & Row, 1978.

Provides instructions for testing for the Gesell School Readiness Assessment (full battery). Norms are reported for

120 preschoolers and 301 school age children. Records of over 820 children were used in establishing the norms reported.

Shatswell, D.W. "Gesell developmental test as a predictor of school success." Dissertation. Marysville, CA: Lawrence University: July 1982. (For information write to 9184 Jones Road, Marysville, CA 95901).

A review of records of 414 elementary students who were recommended by the Gesell test to repeat kindergarten were significantly less likely to be retained in subsequent grades than those who were promoted contrary to such a recommendation. In this school system three-fourths of the retentions were made at the kindergarten level. During the 1981-1982 school year 22 % of kindergarten population repeated kindergarten.

Wasserman, E. "Development as a function of social environment: a comparison of the Incomplete Man between a Head Start group and established norms."

In general the Incomplete Man Test was found to be a useful screening device for large numbers of preschool children. Enough children in the Head Start program were seen to be experiencing developmental delays of more than one year to warrant the consideration of increasing the program to two years for selected children and delaying kindergarten entrance for those children until they are chronologically six years of age.

Wood, C. "Predicting school readiness and the validity of developmental age." Journal of Learning Disabilities, 1984, vol. 17, no. 1, p. 6 - 11.

Gesell assessment effective in predicting success in kindergarten, whereas chronological age was unrelated to later school performance. A critical developmental age of 57.6 months by fall of kindergarten was optimal in predicting potential failures for this sample. This meant that 33% of the chronologically eligible subjects would be recommended for delayed kindergarten entry.

Retention

Research on retention or promotion of failing/unready children has been unable to demonstrate the benefit of either method. However, much of this same research does clearly show that "neither retention nor promotion by itself solves the educational problems of low-achieving students...who continue to perform below the class average." (Research Action Brief,1981)

Research on individual students suggests that some student characteristics can favor retention or promotion. Findings also support the value of transitional or ungraded classes during the

early years for normal but immature students and special support programs for older, low-achieving students.

Thus, meeting the needs of students through programs adjusted to their individual ability levels may be more important to develop than standardized policies of retention or promotion.

Ames, L.S. "Retention: a step forward." Early Times, Dec. 1980.

Advice to parents about how to discuss a retention decision with a child. Also provides parents with rationale for retention.

Chase, J.A. "Differential behavioral characteristics of nonpromoted children" Genetic Psychology Monographs, 1972, vol 86, pg. 219-277.

Study of characteristics that distinguish first grade children who repeat a grade from those children who succeed. 309 first graders were studied on a wide range of variables including measures of perceptual or developmental maturity, achievement, intelligence, classroom behavior and teacher evaluations. The Metropolitan Readiness Test was the single most predictive variable available. Work habits of the children and teachers' April predictions were also important predictors. Findings point to need to think about/examine whether factors schools do use are actually the best ones.

Chase, J.A. "Impact of grade retention on primary school children." J. of Psychology. 1968, vol. 70, p. 169-177.

This study confirmed the following hypothesis: a) Repeating a grade will engender no negative social or emotional effects in the child whose school failure is based primarily on his immaturity for the grade in which he has been placed. b) During the repeated year the perceptual and motor abilities of the child will develop to a point which approximates the experiences of the school system more closely than was the case in the year during which failure occurred.

Harness, C. "The ramifications of grade retention: an annotated bibliography. ERIC ED 253 348, June 1984.

31 research articles are reviewed. Conclusions of the review support the value of minimum standards for promotion and remedial "bridging" programs to assist retained children.

Jackson, G. "The research evidence on the effects of grade retention" Review of Educational Research, vol. 45, no. 4, p. 613-635.

Valuable review of the retention-promotion debate. General

conclusion: "there is no reliable body of evidence to indicate that grade retention is more beneficial than grade promotion for students with serious academic or adjustment difficulties." The lack of well designed studies was clear and recommendations for future more experimental research was recommended.

Lieberman, L.M. "A Decision-making model for in-grade retention." Journal of Learning Disabilities, vol 13, no. 5, May 1980, p. 268-72.

Lists factors to consider before making a decision about retention. Encourages consideration of individual needs of each child.

Light, H.W. "Light's retention scale and recording form." 1977, ERIC ED 191 895.

Lists and scores 19 factors to determine composite score. Score is used as guide only.

Research Action Brief. "Retain or promote?" July 1981 ERIC ED 207 125.

Concise review of literature.

Sandoval, J. and Hughes, G.P. "Success in non-promoted first grade children." June 1981. ERIC ED 212 371

The best predictors of successful retention were child's initial status in academic skills, emotional development and social skills.

Sandoval, J. and Fitzgerald, P. "A high school follow-up of children who were non-promoted or attended a junior first grade." Psychology in the Schools, vol 22. April 1985, p. 13 164-170.

Long-term effects of repeating a grade or participating in a junior first grade examined among 137 high school students. Junior first participants were similar in academic competence to control groups whereas grade repeaters made less progress in high school. The later in school the retention, the poorer the academic performance.

Scott, B.A. and Ames, L.A. "Improved academic, personal and social adjustment in primary-school repeaters." Elementary School Journal. 1969, vol. 69, no. 8.

Finds on a group of 27 elementary children who are required to repeat a grade because of immaturity only revealed that the repeating was accompanied by no emotional or social difficulties and by improved grades as reported by teachers and parents.

Effectiveness of Developmental Placement

Research examining the effectiveness of developmental placement programs is needed: available studies point to its benefits; however, more controlled, experimental study is needed to more clearly understand the effects of developmental placement.

Some important trends within the available literature show:

1. Simply "holding children back" may not be as effective as providing a transitional situation

2. Children who are recommended for developmental placement, but who refuse this recommendation may be different from children who follow the placement decision. Matched samples or more controlled measure of these differences is needed.

3. Measures of multiple variables beyond achievement scores are necessary.

4. Screenings consistently indicate that between 25% and 50% of a given group of school eligible children will be developmentally young. Differences in the range will be effected by cut-off dates.

5. Research shows that need for remedial services will decrease once a developmental placement program is in place.

Batter, M.R. and Gregory, B.J. "The effects of developmental placement on the self-esteem and achievement of young children" Thesis. Oakland University, Rochester, Michigan. (Dr. Jaworski, advisor)

Over 600 children, their teachers and parents were studied. Self-concept and achievement scores were significantly lower among children for whom a growth year was recommended and not taken as compared to children who did not have a growth year (overplaced).

Christian, R.D. "Effect of a pre-kindergarten program on student achievement." Dissertation New York: Teachers College, Columbia University, 1979. (For information write author at Superintendent's Office, School District of Springfield Township, 1901 E. Paper Mill Road, Oreland, PA 19075.)

The conclusion of this study is that a Pre-kindergarten Program for chronologically young boys (birth dates between September 1 and January 31) improved their academic performance. The comparison was with boys who entered regular kindergarten with the same birthdates.

Drury, A. "Assessment of the effect of an additional year of maturation on school readiness scores." M.A. Thesis. Mt. Pleasant, Michigan: Central Michigan University, August 1981.

Findings of this study indicate that children given an extra year before enrolling in kindergarten because they were not ready displayed an increased readiness the following year.

Grant, J. "Longitudinal study of 353 students, grades four, five and six." Temple, New Hampshire: Temple Elementary School, Hadley Highway, Temple, N.H. 03084, Spring 1976.

Students of the Conval Early Childhood Group in these grades were surveyed to determine if there is direct relationship between developmental level at school entrance and subseuqent school success, and to determine if the survey results indicated need for placement program.

All students in the survey had been given the Gesell Developmental Examination prior to entrance to grade one. A comparison was made between placement recommendations from the Gesell Examinations and the need for retentions, special services, and peer and school attitudes as the students progressed to the middle grades. This information provides an overview.

Grant, J. "Placement according to developmental maturity." Temple, New Hampshire: Temple Elementary School, address above, 1975-77.

This is a report of the Conval Valley Regional School District Study Committee on the subject of "readiness."

The study recommends that "Every effort should be made to place students according to developmental maturity. This means taking far more into consideration than automatic placement by a child's calendar age." Several solutions are offered.

May, D.C. and Welch, E.L. "The effects of developmental placement and early retention on children's later scores on standardized tests." Psychology in the Schools, vol.21, July 1984, p. 381-385.

Scores on Gesell at end of kindergarten and end of 1st grade, 3rd grade New York PEP tests and Stanford Achievement Test were compared among 223 children. Children who were retained had the lowest scores on all measures.

Turley, C.C. "A study of elementary school children for whom a second year of kindergarten was recommended." California Reader, March/April 1982, p. 11-12.

A 3-year sample of children who were developmentally unready

was studied; one group spent an additional year in Kindergarten while the other group went in to first grade. A control group of ready children was also selected. The retained group scored 8.7 months higher in reading in grade one and 7.7 higher in mathematics. By grade 3, 54% of children who had refused kindergarten retention had repeated a grade.